

**BEFORE THE HIMACHAL PRADESH ELECTRICITY REGULATORY  
COMMISSION SHIMLA**

**Suo-Moto Petition No: 03 of 2024**

Date of Filing: 24.08.2024

Arguments Heard on: 25.09.2024

**Decided on: 09.10.2024**

**CORAM**

**DEVENDRA KUMAR SHARMA  
CHAIRMAN**

**YASHWANT SINGH CHOGAL  
MEMBER (Law)**

**SHASHI KANT JOSHI  
MEMBER**

**In the matter of:**

The Himachal Pradesh Electricity Regulatory Commission on  
its own motion  
Vidyut Aayog Bhawan, Block No. 37, SDA Complex, Kasumpti,  
Shimla-171009  
Versus

1. The HP State Electricity Board Ltd. through,  
Chief Engineer (Commercial),  
Vidyut Bhawan- Shimla, HP 171004. ....**Respondent No.1**
  
2. The HP Power Transmission Corporation Limited through,  
General Manger (C&D),  
Himfed Bhawan, Near ISBT,  
Panjari (Below Old MLA Quarters),  
Shimla, HP-171005. ....**Respondent No. 2**

**Suo-Moto Petition under the provisions of Section 86(1)(f) of the Electricity Act 2003 initiated by the commission on Minutes of Meeting held with M/s HPPTCL and M/s HPSEBL on 22.08.2024 in the Commission and reference received from the Department of MPP & Power, Government of Himachal Pradesh in respect of dispute between two licencees i.e. the Respondent No. 1/HPSEBL and the Respondent No. 2/ HPPTCL.**

Present:-

Sh. Yashwant Singh, Executive Director (Technical) for the Commission.

Sh. Kamlesh Saklani authorized representative for Respondent No. 1.

Sh. Manoj Kumar, GM (C&D) for Respondent No. 2.

### **ORDER**

This Suo-Moto Petition has been initiated by the Commission under Section 86 (1) (f) of the Electricity Act, 2003 (Act for short) in respect of a dispute between two licensees i.e. the Himachal Pradesh State Electricity Board Limited (Respondent No. 1/ HPSEBL for short) and the Himachal Pradesh Power Transmission Corporation Limited (the Respondent No. 2/ HPPTCL for short) with regard to transfer of 132 kV S/C Giri - Jamta line of HPSEBL to HPPTCL for upgradation to 220 kV D/C line and Transfer of 220 kV D/C Jamta to Devni line to the HPPTCL for charging at 220 kV level as part of 220 kV D/C line from 400/220 kV Kala Amb Sub-station PKATL to 220/132/33 kV Giri Sub-station of HPSEBL on the basis of meeting held with the HPPTCL and the HPSEBL on 22.08.2024 in the Himachal Pradesh Electricity Regulatory Commission (HPERC/ Commission for short) upon a reference received from the Department of MPP & Power, Government of Himachal Pradesh (GoHP for short).

2. The minutes of meeting dated 22.08.2024 and the enclosures received from Department of MPP & Power alongwith letter dated

19.08.2024 were ordered to be treated as part of the record. The commission vide order dated 24.08.2024 authorised and directed the Executive Director (Technical) of the Commission to assist the Commission in the matter. Simultaneously, the commission also directed both the respondents to submit their respective replies within two weeks with copy to the opposite party.

### **Submissions/ Reply of Respondent-1/ HPSEBL**

#### **3. The Respondent-1/HPSEBL has submitted as under:**

- i) The 132/33/11 kV Sub-Station Johron (Kala Amb) of HPSEBL was the only source to feed the load demand of Kala Amb Industrial & its surrounding areas. Initially the Kala Amb Sub-Station was connected to 220/132 kV Giri-Sub-Station through 132 kV S/C Giri-Kala Amb Transmission Line. 220/132 kV Sub-Station Giri has connectivity with Khodri Power House through 220 kV D/C Transmission line with drawl restriction of 200 MVA and 220/132/33 kV Sub-Station Kunihar through 2 nos. 132 kV S/C Kunihar-Solan-Giri Transmission Lines. Subsequently, in order to meet the load requirement of Solan, Rajgarh and surrounding areas, a new 132/33 kV Sub-station at Gaura was constructed by LILO of 132 kV Solan-Giri Circuit No.II.
- ii) In order to provide alternate source to Kala Amb area and also to meet the upcoming load demand of Kala Amb area, following

two (2) elements were conceived and executed by the HPSEBL considering 132 kV Giri Solan Ckt-1 Transmission Line:-

- a) 132 kV D/C Jamta to Devni Transmission Line on 220 KV Towers with Zebra Conductor (charged on 132 kV level) - Line length 12.181 km
- b) 132 kV S/C line on D/C Towers from Devni to 132/33/11 kV Sub-Station Kala Amb- Line length 5.835 km.

The Respondent No. 1/ HPSEBL has further submitted that initially 132 kV Solan-Jamta-Giri Transmission line was solid tapped at Jamta to connect Kala Amb Sub-Station through 132 kV Jamta-Devni-Kala Amb Transmission line.

- iii) Furthermore, the 132 kV Solan-Jamta-Giri (through Devni) Transmission line is feeding the load to Kala Amb area alternatively either from Solan or Giri end as per availability of Power from both ends. The said Transmission line is of paramount importance to the HPSEBL. In order to meet the load requirement of Kala Amb area, the Power grid under Transmission system for Northern Region System Strengthening Scheme NRSS- XXXI (Part A) has executed the following element in the area:-

- a) LILO of both circuits of 400 kV Karcham Wangtoo - Abdullapur transmission line at Kala Amb Sub-station (on

M/C towers) - 2.42 Ckt. KM for construction of 2x 315 MVA, 400/220 kV GIS Sub-station at Arandwala (Kala Amb).

- iv) Further, in order to fetch the power from 400/220 kV PGCIL Sub-Station Arandwala (Kala Amb), following EHV elements were proposed and are being executed by the HPPTCL:
- a) 220/132/33 kV Sub-Station Andheri:- 160/200 MVA at 220/132 kV level & 2 X 25/31.5 MVA, 132/33 kV level
  - b) 220 kV Multi Circuit Transmission Line from 400/220 kV PGCIL Sub-Station Arandwala (Kala Amb).
- v) It is also submitted that as per the HPPTCL, 220 kV Multi Circuit Transmission Line from 220/132/33 kV Sub- Station Andheri (Upper D/C will be charged at 220 kV level and will be extended upto Giri Sub-Station) and lower D/C will be charged at 132 kV level and routed to 132/33/11 kV Sub-Station Johron (Kala Amb) through Devni. The HPPTCL has proposed the said arrangement i.e. to connect Giri Sub-Station of the HPSEBL with PGCIL Arandwala Sub-station at 220 kV level.
- vi) Also that as per the original proposal conceived by the HPSEBL, 132 kV Multi Circuit Transmission Line on 220 kV Multi Circuit Towers with Zebra conductor was to be constructed from 220/132/33 kV Sub-Station Andheri upto Devni to connect

Kala Amb Sub-Station (D/C) and also LILoing of existing 132 kV S/C Solan-Jamta-Giri Transmission line.

- vii) The work of construction of 220/132 kV, 2x80/100 MVA Sub-Station at Kala Amb alongwith associated 220 kV lines from 400/220 kV, 2 x 315 MVA Sub-Station of PGCIL at Arandwala was transferred to the HPPTCL vide the HPSEBL letter dated- 22.02.2018. The 132 kV lines planned to emanate from this Sub-station for catering power to Kala Amb/Giri/Paonta or other areas, was to be executed by the HPSEBL. Further, the work "Construction of 132 kV Multi Circuit Line on 220 kV Multi Circuit Towers with Zebra Conductor from 220/132 kV Sub-station Andheri to Tower no. 19 of 132 kV Jamta-Kala Amb line and stringing & sagging of Panther Conductor on 2nd Circuit of 132 kV Jamta-Kala Amb line on 132 kV D/C Towers from Tower T-1 (Devni) to T-14 (Kala Amb) was also transferred to the HPPTCL by the HPSEBL vide letter dated 22.02.2018 and 26.03.2021. The matter regarding 220 kV D/C Transmission line from 400/220 kV PGCIL Sub- Station Arandwala to Giri Sub-Station (by conversion of 132 kV S/C Jamta-Giri Transmission line to 220 kV D/C) was also discussed in the meeting between the HPPTCL and the HPSEBL held on dated 03.03.2023, but after lengthy deliberations no consensus was reached.

- viii) Also submitted that the HPSEBL vide letter dated 04.09.2023 conveyed its consent for "Construction of 220 kV D/C line from (Tower No.61) at Jamta to Giri transmission line by dismantling the existing 132 kV S/C Jamta LILO Point (T.No.-61) to Giri Transmission line" proposed under "Himachal Pradesh power Sector Development Program (HPPSDP)" with funding from World Bank. Now, as per consent conveyed by the HPSEBL, the HPPTCL has to construct 220 kV D/C Transmission Line from last Tower of 220 kV Multi Circuit Andheri-Devni Transmission line upto Tower No. 61 of Jamta-Giri Transmission line. Further, in order to provide reliability at 132 kV level from 220/132/33 kV Sub-station Andheri to 132/33 kV Sub-station Solan, the HPSEBL has requested the HPPTCL to construct 132 kV switching station at Devni or nearby location vide letter dated 20.06.2024 . However, consent of the HPSEBL to upgrade 132 kV S/C Transmission from Jamta (Tower No.61) to Giri to 220 kV level has already been conveyed to the HPPTCL as explained above.
- ix) Further submitted that the HPPTCL has requested time and again for the transfer of the HPSEBL's 132 kV S/C Giri-Jamta line to them. The transfer of assets is bound by the Bipartite Agreement executed on dated 24.05.2010 between the GoHP

and Joint Front of Electricity Employees and Engineers wherein it was agreed "that both the parties agree that after the signing of the present agreement, no change would be made in the transfer scheme unless such change is mutually agreed upon again". So, the HPPTCL's request for transfer of the HPSEBL's asset to the HPPTCL is breach of the said agreement.

- x) The HPSEBL vide D.O. note dated 09.07.2024 has already conveyed the GoHP that 132 KV Solan-Kala Amb Transmission line is very important to ensure N-1 Contingency at 132/33 kV Sub-stations Kala Amb and Solan in case of non-availability of power from 220/132 kV Sub-stations Andheri and Kunihar respectively.
- xi) According to the HPSEBL, in order to ensure N-1 contingency for both 132/33 kV Sub-Stations at Kala Amb and Solan in case of shutdown/breakdown at 220/132 kV Sub-stations Kunihar and Andheri, the 132 KV Solan-Jamta-Devni-Kala Amb link be kept operational. Further, in order to ensure alternate power supply source to 220/132/33 kV Sub-station Girinagar at 220 kV level from 400/220 kV PGCIL Sub-station Arandwala, following options may kindly be considered by the Commission:-
  - a) Construction of 132 kV Switching Station at Devni or nearby location by the HPPTCL and New 220 kV D/C Devni-Jamta



Transmission line and further up-gradation of 132 kV S/C Jamta-Giri Transmission line to 220 kV D/C level.

OR

- b) Upgradation of 132 kV S/C Jamta-Giri Transmission Line to 220 kV Multi Circuit Transmission Line in same configuration as from 220/132/33 kV Sub-station Andheri to Devni (Upper D/C will be charged at 220 kV level and will be extended upto Giri Sub-station) and lower S/C will be charged at 132 kV level to ensure connectivity of existing HPSEBL's 132 kV Solan-Giri Transmission through Jamta.

#### **4 Submissions/ Reply of Respondent-2/ HPPTCL**

**The Respondent No-2/ HPPTCL has submitted as under:-**

- i) The Respondent No.1/HPSEBL is the major beneficiary of project and was approached vide letter dated 17.01.2023 and pursuant thereto, accorded its consent for Upgradation of 132 kV S/C (Single Circuit) Giri - Jamta line to 220 kV D/C (Double Circuit) line vide their letter dated 04.09.2023 after approval from its Whole Time Directors (WTD). The HPPTCL vide letters dated 11.10.2023 and 03.06.2024 requested the HPSEBL for transfer the asset before initiating work of upgradation to 220 kV D/C line. According to the Respondent

No. 2/HPPTCL, on 20.06.2024, CE (SP) of the HPSEBL conveyed that the configuration of 132 kV line from Johron to Jamta shall remain unchanged i.e. 132 kV only. According to them, the proposal prepared by the HPSEBL will derail the entire master plan for the area wherein the portion of proposed Giri- Andheri line between Devni and Jamta constructed on 220 kV by the HPSEBL is to be used as a part of 220 kV Andheri to Giri line. Therefore, it was refuted by the HPPTCL. The revised proposal submitted by the HPSEBL is in contradiction of earlier agreed and approved master plan and portion of line from Devni to Jamta needs to be used, in addition to upgradation of Single Circuit line from Jamta to Giri to 220 kV Double Circuit line for completing the 220kV Double Circuit line between Andheri and Giri.

- ii)** The Respondent No.2/HPPTCL has further submitted that the planning to use existing 220 kV line between Devni to Jamta and to upgrade existing 132 kV Jamta -Giri line is in continuation to initial plan and the system constructed by the HPSEBL. As a matter of fact, the 220 kV multi circuit line from 220/132 kV Kala Amb Sub-station of the HPPTCL to Devni was planned and tendered by the HPSEBL as per the master plan and was handed over to the HPPTCL for

execution. The type of conductor and towers used between Devni and Jamta clearly indicate that this line was to be used for 220 kV D/C (Double Circuit) line from 220 kV Andheri to Giri and is an integral part of this plan. Any deviation at this stage shall damage the complete master plan considering that the HPPTCL has already invested INR 70 Crores in part of this project from domestic funding. If it was not so, the HPPTCL would have gone for separate independent 132 kV D/C corridor till 132/33 kV Johron and 220 kV D/C corridor till 220/132 kV Giri Sub-station. The issue of upgradation of 132 kV Single circuit line between Jamta to Giri to 220 kV Double circuit line was also referred for advice of Er. R.K. Sharma, Managing Director (Retired), as approved by Chief Secretary (MPP & Power), who has also vetted the proposal of the HPPTCL and advised the Government to resolve the asset handover issue in the interest of State.

- iii) The HPPTCL being STU has to plan the EHV infrastructure keeping in view the load growth of the State in general and various power intensive pockets in particular. The consumers of Kala Amb industrial area are facing acute power shortage issues for a long time. Now, the time has come when their demands can be addressed but due to stand taken by

HPSEBL for not allowing to charge the Devni-Jamta link to 220 kV level and not allowing the termination of two 132 kV circuits from Andheri at Devni to take care of the requirements of 132/33/11 kV Johron Sub-station at Kala Amb, the issue of acute shortage of power at Kala Amb remains unsettled. Since the power availability at 220/132 kV Andheri Sub-station is restricted to 200 MVA and the available two 132 kV Circuits get saturated by supplying power to 132/33 kV Johron Sub-station, the proposal of HPSEBL as conveyed vide the letter dated 20.06.2024 to construct 132 kV Switching station near Jamta is not justified. The Solan Sub-station shall primarily draw power from 220/132 kV Kunihar Sub-station with support from 220/132 kV Giri Sub-station under N-1 contingency. The proposal of the HPPTCL is in compliance to CEA Transmission Planning Manual and HP Grid Code supported by the load flow studies which has been submitted with the technical analysis. The proposed system shall ensure that under any N-1 contingency, the power supply to 132/33/11 kV Johron Sub-station, 132/33 kV Solan, 132/33 kV Gaura and 220/132 kV Giri Sub-station is not affected.

**5 The Respondent-2/HPPTCL has also submitted the technical analysis of its proposal as under:-**

**A) Kala Amb industrial area -**

- i) The Kala Amb Industrial Area is currently being supplied power from 132/33 kV Sub-station of HPSEBL at Johron. The Sub-station is being fed from two sources i.e. 220/132 kV Kunihar through 132/33 kV Solan Sub-station and 220/132/33 kV Giri Sub-station (Both of which are working on peak capacity and facing restriction for any further drawl) and is working on maximum capacity. The peak loadings experienced by these lines are as follows-

Sr.No.	Name of line	Peak Capacity (MW)	Recorded peak flows (MW)
1.	132 kV S/C SolanJamta line	80	<b>95.6</b>
2.	132 kV S/C Giri- Johron (Kala Amb) line.	80	<b>110</b>

The HPPTCL has further submitted that both the lines are overloaded well beyond their capacity over 37% of their thermal capacities at **45 Degree Ambient and 75 Degree Conductor Temperature.**

- ii) The present loading of 132/33 kV Johron Sub-station is as follows-

Sr. No.	Name of Transformation/line	Capacity (MVA)
1.	132/33 kV	114.5

2.	132/11 kV	31.5
3.	Direct load at 132 kV level	Two 132 kV feeders totalling around 80 MVA
	Peak load served as on date	Around 200 MVA

In addition, there are Pending Power Availability Certificates (PACs) of around 40 MVA in respect of M/s JB Rolling Mill. The loadings in totality shall be around 240 MW Plus for Kala Amb/Johron Sub-station itself against capacity of 200 MVA planned by the HPSEBL and executed by the HPPTCL at 220/132 kV Andheri Sub-station of the HPPTCL. The HPPTCL has already initiated process for augmentation of 220/132 kV Andheri Sub-station by providing additional 200 MVA Transformer Bank to cater to N-1 requirement of Kala Amb/Johron Sub-station. (This additional 200 MVA capacity shall only be providing N-1 reliability to Johron Sub-station and cannot be construed as availability of additional power to the area). The N-1 criteria specified in CEA Planning Criteria Specifies as follows-

**“ Single contingency (‘N-1’)**

**Steady-state:**

*a) All the equipment in the transmission system shall remain within their **normal thermal and voltage ratings** after outage / loss of any one of the following elements (called single contingency or ‘N-1’), but without load shedding /rescheduling of generation:*

- **Outage of a 132 kV single circuit,**
- *Outage of a 220 kV single circuit,*

- *Outage of a 400 kV single circuit (with or without fixed series capacitor),*
- ***Outage of an Inter-Connecting Transformer (ICT) / power transformer,***
- *Outage of a 765 kV single circuit*
- *Outage of one pole of HVDC bipole”*

The HPPTCL had conducted load flows analysis on the system after commissioning the downstream system. The additional 200 MVA Bank at 220/132 kV Andheri Sub-station shall ensure N-1 compliance in case of outage of Inter-Connecting Transformer (ICT) / Power Transformer. Since in the final arrangement, two 132 kV circuits from Andheri and One 132 kV Circuit from Giri shall be available at Johron Sub-station, around 200 MVA power shall be available in case of Outage of a 132 kV single circuit thereby complying with N-1 criteria in respect of outage of Single circuit line as specified in CEA Manual for Transmission Planning. This ensures that 220/132 kV Andheri and its downstream system executed by HPPTCL in N-1 Compliant for providing Supply of Power to 132/33 kV Johron Sub-station, whereas suitable uprating of 132 kV D/C line from Jamta to Giri and 132 kV S/C line from Giri to Johron shall be required in future. The 220/132 kV, 200 MVA Andheri and 220/132 kV, 200 MVA Giri Sub-station shall work in integrated manner to ensure

uninterrupted and quality power supply to 132/33 kV Johron Sub-station. The detail of flow has been given as under:-

Flows under normal scenario after implementation of 220 kV D/C Andheri to Giri line and termination of two 132 kV circuits at 132/33/11 kV Johron Sub-station of HPSEBL under integrated operation.		
Name of element	Peak capacity considering N-1 (MW)	Flows (MW)
220/132 kV Andheri*	200	197
220 kV D/C Arandhwala-Andheri per circuit flows.	200	197
132 kV D/C Andheri-Johron line per circuit flows.**	40	82
132 kV S/C Giri-Johron line.	80	6

\*Additional 220/132 kV, 200 MVA Transformer at Andheri Sub-station has been planned.

\*\*Upgrading of conductor of 132 kV D/C Jamta -Johron line and 132 kV Giri-Johron line to be taken up subsequently.

## B.) Giri Sub-station and Paonta Sahib Industrial Area-

- i) The 220/132/33 kV Giri Sub-station is currently being supplied power from 220 kV D/C Khodri - Majri/Giri Inter-state Transmission line & injection at 132 kV level from 60 MW Giri HEP of the HPSEBL. Due to the peculiar nature of demand of the State, the generation of Giri HEP is minimal during winters when peak loadings are experienced in the State. The peak loadings experienced by the 220 kV D/C Khodri - Mazri line are as follows-

Sr. No.	Name of line	Peak Capacity (MVA) under (N-1)	Recorded peak flows (MVA)
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1.	220 kV D/C Khodri-Mazri/Giri line	200	<b>Upto 220</b>
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The line presently is loaded upto its N-1 Capacity. Since Transmission execution takes around 4 years' time from planning to execution stage, the loadings in 4 year horizon at **6% Y-o-Y increase shall be around 250 MVA**. This is well beyond the N-1 capacity of the 220 kV D/C line as well as shall increase frequency of restriction from Uttarakhand on drawl of power as the line at Khodri is only supported by single 220 kV D/C line of Uttarakhand intrastate transmission system with their own 220 kV Sub-stations planned on the line. The 220/132 kV Giri Sub-station needs to be provided with reliable power supply 220 kV link to ensure reliable power supply to Giri, Paonta Sahib as well as Johron Sub-station. The 220/132 kV, 2X100 MVA Paonta Sub-station has also been proposed by the HPPTCL to meet growing demand of Paonta Sahib area. This will in totality put 400 MVA Transformation capacity on 220 kV D/C Khodri - Mazri line against its capacity of 200 MVA.

The major loads being supplied by 220/132 kV Giri Sub-station after shifting of load to 220/132 kV Andheri as per load flow analysis done after commissioning of 132 kV Downstream line

from Andheri Sub-station and 220 kV D/C Arandhwala-Giri line shall be as follows -

Sr. No.	Name of Transformation	Peak loading (MVA)	
1.	132/33 kV	60	
2.	Direct load at 220 kV level	15	
3.	132 kV level line to Paonta Sahib	90	
4.	132 kV line to Gaura/Solan	42	
5.	132 kV line to Johron	6	
	<b>Total loading at Giri</b>	<b>213</b>	
The loadings of 220 kV lines shall be as follows-			
Sr. No.	Name of line	Peak Capacity (MVA) under(N-1 )	Recorded peak flows (MVA)
1.	220 kV D/C Khodri-Mazri/Giri line	200	<b>64</b>
2.	220 kV D/C Arandhwala - Mazri/Giri line	200	<b>152</b>

As can be seen the loadings from Khodri interstate point are reduced to 64 MVA and additional load growth is met from 400/220 kV Arandhwala Sub-station.

The system is compliant with all N-1 contingencies at 220 kV level specified by CEA Planning criteria.

### **C) Solan Sub-station**

It is submitted that presently Solan Sub-station is being fed from 220/132 kV Kunihar Sub-station via two 132 kV Circuits. Therefore, Solan Sub-

station under present conditions is supplying power to Johron Sub-station. The peak flows experienced as on date are as follows-

Sr. No.	Name of line	Peak Capacity (MW) at 40 Degree Ambient	Permissible loading under N-1 outage (MW)	Recorded peak flows (MW)
1.	132 kV Kunihar - Solan line. (Circuit-1)	90	45	<b>75.41</b>
2.	132 kV Kunihar - Solan line. (Circuit-2)	90	45	<b>98.99</b>

The loadings of 132 kV D/C line from Kunihar to Solan as on date are double the permissible N-1 outage loadings. As on date, Solan Sub-station apart from its own 70 MVA loading is supplying power to Johron as well as Gaura Sub-station. The loadings will reduce to the tune of 30 MVA per circuit upon interconnection of downstream 132 kV D/C line from 220/132/33 kV Andheri (HPPTCL) with 132/33 kV Johron Sub-station of the HPSEBL. Thereafter, the loading shall be within N-1 loading of 90 MVA.

After the HPPTCL's proposed termination arrangement, 132/33 kV Solan Sub-station will have three 132 kV circuits, two from 220/132 kV Kunihar and One from 220/132 kV Giri Sub-station via 132/33 kV Gaura Sub-station. Under outage of any circuit, supply of power to 132/33 kV Solan Sub-station will remain unaffected due to presence of balance two circuits. The load flows under various contingencies is as follows-

Flows under normal scenario after implementation of 220 kV D/C Andheri to Giri line and termination of two 132 kV circuits at 132/33/11 kV Johron Sub-station of the HPSEBL under integrated operation.		
Name of element	Peak capacity considering N-1 (MW)	Flows (MW)
132 kV D/C Kunihar -Solan line	45	30
220/132 kV Giri***	100	200
132 kV Gaura to Solan	80	11
132 kV Giri to Gaura	80	42

\*\*\* Drawl at Giri will reduce to 100 MVA i.e. to its N-1 allowed capacity after commissioning of 220/132 kV, 2X100 MVA Paonta Sahib Sub-station.

It is mentioned that, the power availability to Solan Sub-station is infact increased after interconnection of Johron Sub-station with 220/132 kV Andheri Sub-station of HPPTCL along with upgradation of 132 kV Giri -Jamta line to 220 kV level . The 220/132 kV Giri Sub-station gets reliable power supply which in turn provides reliable and quality power supply to Solan, Johron, Giri and Paonta Sub-station. The 220/132 kV Andheri Sub-station, 220/132 kV Giri Sub-station and 220/132 kV Kunihar Sub-station under integrated operation will provide EHV transmission system in line with CEA planning criteria and HP State Grid Code. The transformation at 220/132 kV Kunihar Sub-station shall also be relieved by around 100 MVA.

6. The Commission vide Order dated 09.09.2024 directed the Respondents to submit the cost implication of construction of Multi-Circuit transmission line as well as 220 kV D/C Transmission line from Jamta to Giri and cost implication of Switching Station at Devni duly supported by affidavits and in compliance thereto, the Respondent No.1/ HPSEBL has made the following submissions:

**I. Cost implication of construction of Multi-Circuit Transmission line from Jamta to Giri (21.862 Kms).**

The Rate of construction of 220 kV Transmission Line on Multi-Circuit Towers is around 4.35 Crore/Km. (Rates as per award placed by The DGM, HPPTCL Shimla for 220 kV transmission line on Multi Circuit Towers (MCT) from 400 KV PGCIL Sub-station to 220/132 kV HPPTCL Sub-station at Andheri (Kala Amb)). The Respondent No. 1 has also annexed a copy of award for the perusal of this Commission as Annexure R/1.

Further that the, cost implication of construction of 220 kV Multi-Circuit Transmission line from Jamta to Giri (21.862 Kms) has been worked out at **Rs. 95.10 Crore.**

**II Cost of 220 KV D/C Transmission Line from Jamta to Giri (21.862 Kms).**

The Respondent No.1/HPSEBL has submitted that Rate of construction of 220 KV D/C Transmission Line is Rs. 1.55 Crore/ Km. Therefore, cost implication of construction of 220 KV D/C Transmission line from Jamta to Giri (21.862 Kms) will be Rs. 1.55 Crore / Km X 21.862 Kms= **Rs. 33.89 Crore.**

- III The Respondent No.1/ HPSEBL further submitted that Cost implication of Switching Sub-station at Devni and cost of construction of 220 kV D/C Transmission line from Jamta to Devni will be around 37.59 Crore as under:-

<b>MAIN ABSTRACT OF COST</b>			
<b>Sr. No.</b>	<b>Description</b>	<b>Amount (In Crore)</b>	<b>Remarks</b>
<b>1</b>	Cost of 132 KV Switching Sub Station at Devni	<b>18.71</b>	As per Annexure -A
<b>2</b>	Cost of Construction of 220 KV D/C Transmission Line from Jamta to Devni (12.181 Kms)	<b>18.88</b>	As per Annexure -B
	<b>Grand Total</b>	<b>37.59</b>	

- 7 The Respondent No.2/ HPPTCL pursuant to directions dated 09.09.2024 has also submitted the cost implication of following four options for the construction of balance portion of 220 kV D/C Arandhwala to Giri Transmission line beyond Devni:-

**A. OPTIONS**

**OPTION-I**

- i. Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and thereafter upgradation of 132 kV S/C Jamta to Giri line to 220 kV D/C line, the 132 kV S/C line from Solan till Jamta shall remain idle.

#### **OPTION-II**

- ii. Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and constructing new 220 kV corridor from nearby Jamta till Giri. In this case the 132 kV S/C line connecting Giri to Solan will remain undisturbed.

#### **OPTION-III**

- iii. Construction of 220kV/132 kV Multi Circuit Muti Voltage line from Devni to Jamta by dismantling existing 220 kV D/C line from Devni to Jamta, upgradation of 132 kV S/C Jamta to Giri line to 220 kV D/C line and construction of 132 kV Switching station near Devni to terminate the 132 kV S/C line from 132/33 kV Solan and 132 kV D/C lines from 132/33 kV Johron and 220/132 kV Andheri Sub-station.

#### **OPTION-IV**

- iv. Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and thereafter upgradation of 132 kV S/C Jamta to Giri line to Multi Circuit Multi Voltage 220 kV/132 kV line. In this

case also the 132 kV S/C line connecting Giri to Solan will remain undisturbed after upgradation.

### **COST IMPLICATION OF OPETION (I TO IV) SUBMITTED BY THE HPPTCL**

The Respondent No. 2 has submitted the following Cost of Construction against each of above options (i) to (iv) alongwith the Pros and Cons of each of the above options:-

<b>Option No.</b>	<b>Estimated Cost (INR Crores)</b>	<b>Pros</b>	<b>Cons</b>
<b>i.</b>	<b>50.50</b>	The R.O.W. of the existing 132 kV S/C line shall be used, only additional 8-meter R.O.W. shall be acquired.	The balance portion of 132 kV S/C Giri - Solan line i.e. 132 kV S/C Solan- Jamta line shall remain idle for time being after upgradation.
<b>ii.</b>	<b>50.36</b>	1. Existing system shall remain intact and 132 kV S/C Giri - Solan line will not be disturbed 2. The system will be constructed at least cost.	Additional corridor for complete 22 KM 220 kV Jamta to Giri shall be required to be acquired.
<b>iii.</b>	<b>132.62*</b>	No merits of proposal are seen considering non-availability of power from 220/132 kV Andheri to serve Solan Sub-station	The scheme shall be highly cost intensive with no benefits to system apart from contingent supply in case of <b>N-1-1-1</b> outage at Solan Sub-station for which system are neither planned nor designed.
<b>iv.</b>	<b>122.06</b>	1. Existing system shall remain intact and 132 kV S/C Giri - Solan line will remain	1. The proposal is not cost effective.



		undisturbed after upgradation. 2. Existing R.O.W. of 132 kV S/C line will be used	
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\*( INR 38.10 crore for 132 kV Switching station near Devni + INR 44.02 crore for dismantling of existing 220 kV D/C Devni to Jamta line and construction of 220 kV/132 kV Multi circuit Multi Voltage line from Jamta to Devni +50.50 for upgradation of 132 kV S/C Jamta to Giri line to 220 kV D/C line from Jamta to Giri line.)

### **Analysis of the Commission**

8. We have heard, Sh. Yashwant Singh, Executive Director (Technical) for the Commission, Sh. Kamlesh Saklani, Authorised Representative for the Respondent No. 1 and Sh. Manoj Kumar, GM (C&D) for the Respondent No. 2 and have also perused the record carefully including the record received with the reference from the Department of MPP & Power, GoHP.

9. The Commission while hearing the Petition, also directed the Respondents to submit “difference in cost” with respect to construction of Multi – Circuit Transmission Line and 220kV D/C Transmission Line from Jamta to Giri and Switching Station at Devni. Pursuant thereto, the Respondents have filed their respective reply as under:-

i) The Respondents No. 1 / HPSEBL has submitted that the costs submitted by the HPSEBL to the commission are only hard costs of works, whereas, the cost analysis submitted by the HPPTCL includes complete project cost such as cost of works, Departmental Charges

@ 11%, Contingency @ 3 %, IDC charges and other mandatory cost of associated works. The Respondent No. 1 has submitted that the hard cost submitted by the HPSEBL is almost matching with the hard cost of HPPTCL with minor differences as under :-

Sr. No.	Description of work	Cost estimate of HPSEBL (In Cr.)	Cost estimate of HPPTCL (In Cr.)	Reason for difference
1	Construction of Multi-Circuit Transmission line from Jamta to Giri (21.862 Kms)	95.10	93.93	Minor difference only.
2	Cost of 220 KV D/C Transmission Line from Jamta to Giri (21.862 Kms)	33.89	37.33	Difference in hard cost due to FCA cost included by HPPTCL.
3.	Cost of 132 KV Switching Sub Station at Devni	18.71	26.12	Difference in hard cost due to additional 132 KV Line cost included by HPPTCL for re-orientation.

ii) The Respondents No. 2 / HPPTCL, on the other hand has submitted that the costs assessment of above works submitted by the HPPTCL included complete project cost such as cost of works, Departmental Charges @ 11%, Contingency @ 3%, IDC charges and other mandatory costs of associated works whereas, the cost analysis of the HPSEBL includes only hard costs of works.

The Commission now proceeds to examine the respective proposals submitted by the Respondents.

**(A) PROPOSAL (a) and (b) SUBMITTED BY RESPONDENT No.**

**1/HPSEBL**

(a) On careful perusal of the record, the Commission is of the opinion that the Construction of 132 kV Switching Station at Devni or nearby location by the HPPTCL and New 220 kV D/C Devni-Jamta Transmission line and further up-gradation of 132 kV S/C Jamta-Giri Transmission line to 220 kV D/C line will have following hard cost implications :-

- |  |             |
|--|-------------|
| a) Construction of 132 kV Switching Station                                    | Rs.18.71Cr  |
| b) Construction of 220 kV D/C Devni-Jamta line                                 | Rs.18.88 Cr |
| c) up-gradation of 132 kV S/C Jamta-Giri transmission line to 220 kV D/C level | Rs.33.89 Cr |

Apart from the above costs involved and perusal of load flows submitted by the Respondent No. 2/ HPPTCL, the Commission finds no merits in the above proposal as switching station will have recurring costs in addition to above costs. Further, in view of load growth in the Kala Amb area, it will not be feasible to feed power back to Solan from Kala Amb. Further, the Kala Amb will not depend for supply on 132 kV Kunihar-Solan-Kala Amb system as 220 kV Giri Sub-station and 220kV Andheri Sub-station shall supply Kala Amb in all the contingency conditions. Therefore, there is no requirement of existing Jamta – Johron 132 kV

transmission link and further construction of switching station. This proposal being not viable and is not in the interest of the consumers. The same is therefore, liable to be rejected.

- (b) In so far as the proposal of the upgradation of 132 kV S/C Jamta-Giri Transmission Line to 220 kV Multi Circuit Transmission Line in the same configuration as from 220/132/33 kV Sub-Station Andheri to Devni in which upper D/C will be charged at 220 kV level and will be extended upto Giri Sub-station and lower S/C will be charged at 132 kV level to ensure connectivity of existing HPSEBL's 132 kV Solan-Giri Transmission line through Jamta, the Commission on careful analysis of the entire record is of the opinion that the above proposal shall link 220 kV PGCIL Sub-station with 220kV Giri Sub-station and also connect Giri 220/132 kV Sub-station with 132 kV Solan Sub-station through 132 kV Giri-Jamta-Solan transmission line. Technically, the proposal sounds good but the same is not economical in view of high costs involved to the tune of Rs.122.06 Cr. Therefore, the above proposal is liable to be rejected solely on ground of high implementation costs involved.

**(B) PROPSAL/ OPTIONS NO. I to IV submitted by Respondent**

**No.2/HPPTCL**

**OPTION NO. (i)**

**Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and thereafter upgradation of 132 kV S/C Jamta to Giri line to 220 kV D/C line. The 132 kV S/C line from Solan till Jamta shall remain idle.**

The above proposal cannot be allowed as it renders existing 132 kV Solan Jamta transmission line idle, which according to the Commission can be utilised to supply power to 132 kV Solan Sub-station from alternate source under contingency conditions. The above proposal has been initiated by the Respondent No. 2 with consideration of 70 MVA load being served by 132 kV Solan Sub-station. The system seems to be sufficient for N-1 Contingency till load in the Solan area grows to around 100 MVA. However, in case of outage of Kunihar Sub-station, Solan area will experience power cuts, as Giri-Solan 132 kV line will not be able to supply 70 MVA to Solan due to draws at Gaura. Under such conditions, 132 kV Solan Sub-station can be supplied from Giri Sub-station. This proposal, therefore, does not merit consideration.

**OPTION NO. (ii)**

**Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and constructing a new 220 kV corridor from**

nearby Jamta till Giri. In this case, the 132 kV S/C line connecting Giri to Solan will remain undisturbed after upgradation.

On careful examination of the above proposal, the Commission is of view that the proposal is economical and technically feasible. This proposal as submitted by Respondent-2 / HPPTCL addresses all the technical issues raised by Respondent-1/ HPSEBL in their proposal in Option-II. This proposal will not only take care of N-1 contingency conditions in Kala Amb region, but it will also ensure N-1 contingency to Solan area. Further, the proposal will ensure two power sources to Solan thus, not compromising the power reliability of Solan area in case of outage of 220 kV Kunihar Sub-station. This proposal is not only technically feasible but is also economically viable and addresses all the issues and would be in the interest of the Respondents and the consumers and may be accepted.

**OPTION NO. (iii)**

**Construction of 220kV/132 kV Multi Circuit Muti Voltage line from Devni to Jamta by dismantling existing 220 kV D/C line from Devni to Jamta, upgradation of 132 kV S/C Jamta to Giri**

**line to 220 kV D/C line and construction of 132 kV Switching station near Devni to terminate the 132 kV S/C line from 132/33 kV Solan and 132 kV D/C lines from 132/33 kV Johron and 220/132 kV Andheri Sub-station.**

The Commission has carefully analyzed the above proposal from all aspects. The Commission is of opinion that the proposal is not technically and economically viable as costs involved are to the tune of Rs.132.62 Cr. Apart from the high costs involved, the perusal of load flows submitted by the HPPTCL shows that it will not be feasible to feed power back to Solan from Kala Amb. Similarly, the Kala Amb area will not depend for supply on Kunihar-Solan-Kala Amb system as 220 kV Giri Sub-station and 220kV Andheri Sub-station shall supply Kala Amb in any contingency conditions. Apart from high cost involved, the switching station will have recurring maintenance cost. Therefore, this proposal too is liable to be rejected.

**OPTION NO. (iv)**

**Using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and thereafter upgradation of 132 kV S/C Jamta to Giri line to Multi Circuit Multi Voltage 220 kV/132 kV line. In this case also the 132 kV S/C line connecting Giri to Solan will remain undisturbed after upgradation.**

On careful analysis of all aspects and the record carefully, the Commission is of the opinion that the above proposal is highly uneconomical as costs involved are to the tune of Rs.122.06 Cr. Therefore, the above proposal being not in the interest of the Respondents and the consumers is also liable to be rejected.

10. Therefore on careful analysis of all the proposals (a) and (b) of the Respondent No. 1/HPSEBL as discussed in para 9 (A) and proposal/ options No. (I) to (IV) of the Respondent No. 2/HPPTCL at Para 9 (B) above, the Commission is of the considered view that the proposal (a) and (b) of the Respondent No. 1/ HPSEBL and proposal/ options No. (i), (iii) and (iv) of the HPPTCL are not viable for the reasons mentioned against each of the proposal/ options discussed thereunder. However, the proposal/ option No. (ii) of the HPPTCL appears to most viable and cost efficient and shall be in the best interest of the Respondents and the Consumers of the State and is accordingly accepted.

**Final Order.**

11. In view of the above, the proposal No. (ii) i.e. using existing 220 kV D/C line from Devni to Jamta by charging it on 220 kV level and constructing a new 220 kV corridor from nearby Jamta till Giri. In this case, the 132 kV S/C line connecting Giri to Solan will remain undisturbed after upgradation as submitted by the HPPTCL is



accepted. The HPTTCL is directed to construct the new 220 kV D/C transmission line from Jamta to Giri. The HPSEBL is directed to handover Jamta-Devni-Johron transmission section to the HPPTCL within a month. Cost of transfer and other codal formalities be completed at the earliest and compliance be submitted to the Commission within three months positively.

12. A copy of the order be sent to the Department of MPP & Power, Govt. of H.P in continuation of letter dated 19.08.2024.

13. A copy of the order be also supplied to both the Respondents.

The file after doing the needful be consigned to records.

Announced  
**09.10.2024**

**-Sd/-**  
**(Shashi Kant Joshi)**  
**Member**

**-sd/-**  
**(Yashwant Singh Chogal)**  
**Member (Law)**

**-sd/-**  
**(Devendra Kumar Sharma)**  
**Chairman**